

ing the 20th century meteorologists will give increasing attention to the solar heat, atmospheric moisture, the rotation of the earth, and other important matters that enter into dynamic meteorology and will not revive a useless discussion as to the influence of the moon on the weather. Its real, but very slight, influence on the semimonthly atmospheric tides seems to be a matter of interest to mathematicians rather than to meteorologists. The excellent review of our knowledge of the lunar influence, given by van Bebber in the first chapter of his Handbook of Practical Meteorology, ought to suffice for the present.

METEOROLOGY IN MADAGASCAR.

As the progress of meteorology depends largely upon the maintenance of records in the out of the way places of the world and on the ocean vessels in order that we may fill up the great gaps in the daily weather map of the world, we take pleasure in the announcement that the meteorological system of Madagascar has been reestablished, with its headquarters at the mission station and observatory at Tananarivo, the capital of Madagascar. The new observatory is being rebuilt on the site of the old observatory, about a mile and a half east of the capital on the summit of a barren hill, and resumed its work in July, 1899, at least in part. So far as possible, the building stones that were overturned in the revolution of 1895 have been again utilized. The institution is still in charge of its original director, Father Colin, of the Roman Catholic Mission. This constitutes a most important station for the observation, study, and prediction of the typhoons of the southern Indian Ocean. Further details will be found in an article by W. H. Hunt in the Bulletin of the American Geographical Society, July, 1901, page 204.

POPULAR ERRORS IN METEOROLOGY AND GEOGRAPHY.

In the Bulletin of the American Geographical Society, Vol. XXXIII, No. 3, July, 1901, page 259, we find an admirable article by Mr. Henry Gannett entitled "Certain persistent errors in geography." Some of the items mentioned by him pertain specifically to meteorology, which subject is often treated as one of the children, whereas it is really the parent of the many lines of study included under the word geography. In the intellectual progress of a nation there can be nothing more important than the eradication of errors from the children's text-books, and this will never be done so long as compilers and publishers find it to their advantage to occasionally introduce popular fictions or hazy theories instead of sound knowledge. It is a very common complaint on the part of advanced students that "old legends which were taught as truths a generation or more ago still survive in the text-books, and are still accepted by the great mass of the people." It ought not to be necessary to reconcile ourselves to the idea that "still another generation will pass before the truth will filter down from geographers into the text-books and from the text-books to the people." Every school board of trustees would do well to have a committee on revision of text-books, and to insist that revised editions be furnished. He is a benefactor to the people who eradicates weeds from the farm and errors from the mind.

Although Mr. Gannett's remarks on the influence of forests on rainfall, the influence of the Japan Current, and the Gulf Stream are analogous to some that have appeared in the MONTHLY WEATHER REVIEW, yet we think it well to reprint them as an admirable contribution to the campaign of truth against error:

"Forests and rainfall.—An example of the persistence of error is the idea that the presence or absence of forests has an influence upon the amount of rainfall. Some keen observer long ago detected the fact that forested regions enjoyed a heavier rainfall than those not forested, and jumped to the conclusion that rainfall was produced by forests, and, as a corollary, that the removal of forests diminished the rainfall. Looking over the earth he found many treeless, desert, and semidesert regions, and forthwith instanced them as frightful examples of the result of man's wastefulness in destroying the forests. Prominent among these examples are the shores of the Mediterranean, including the Iberian Peninsula, Italy, northern Africa, and Syria, which are often quoted as favorite illustrations of man's destruction of climate by his destruction of the forests.

"In reply to this charge man can certainly plead not guilty. If his accusers had possessed a little more knowledge of the causes of climate and the conditions which modify it, they would have seen at once that the geography of this Mediterranean region, the present configuration of the land and water, and the prevailing winds are such as to give it a light rainfall—forests or no forests. Furthermore, a knowledge of physiography would have taught them, in corroboration of the above, that the arid or semiarid conditions now existing must have existed for many thousands, if not millions, of years, for the mountains, cliffs, and canyons are such as are carved only in arid regions, are not those of a moist climate, and these forms have not been made in a day. The situation is simply that the cart has been placed before the horse. Want of rain prevents the growth of trees; want of trees does not prevent rain. This position is generally accepted among physical geographers but the majority of the people still reverse cause and effect.

"Forests and floods.—A persistent, widespread, and well-rooted error is the belief that floods in our rivers are greater and more frequent than formerly, and that this is due to the removal of forests from their drainage areas. Every great flood induces another flood of editorial paragraphs in the newspapers to the effect that man, by clearing away forests, has increased the flood height of streams, and correspondingly diminished the low water flow.

"It is probable, although it has not been proved, that the clearing of land by cutting away the forests and undergrowth, does change the regimen of streams, increasing their flood height and diminishing the flow at low stages. In other words, water probably runs off or evaporates more rapidly from bare ground than from ground which is covered with trees or other forms of vegetation. But where the forests are cut away the land is seldom left bare; it is cultivated or quickly becomes covered with bushes which hold the water quite as effectively as forests.

"The main fact, however, is that the floods in our rivers are no greater or more frequent now than in the past. The Ohio River, for instance, has been gaged continuously for many years, and these gagings show no appreciable change in regimen, whatever changes may have been made in the forest cover of its basin.

"In the school geographies we are taught that the fiords of the coast of Norway, those deep gorges partly filled by the sea, are proof that the coast has been sinking. How could such canyons be cut, it is asked, unless at the time of their construction they were above sea level? But to-day, on the coast of Alaska, we see just such canyons in course of construction below sea level. On this coast are scores of glaciers traveling in gorges, which near their lower ends are many hundred feet below the level of the sea. The Muir Glacier, where its front meets the sea, is over 800 feet thick, 600 feet of which is below the level of the water, and this, like all other glaciers, is constantly carving its bed deeper. The Nor-